



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Parker River National Wildlife Refuge
6 Plum Island Turnpike
Newburyport, Massachusetts 01950



Kathleen Baskin, P.E.
Director of Water Policy
Executive Office of Energy and Environmental Affairs
100 Cambridge Street, 9th floor
Boston, MA 02114
Via email

Re: Massachusetts Sustainable Water Management Initiative Framework Summary

Dear Ms. Baskin:

Parker River National Wildlife Refuge appreciates the opportunity to provide comments on the Massachusetts Sustainable Water Management Initiative Framework Summary. The Parker River Refuge is part of a national network of more than 535 national wildlife refuges protected for the conservation, management, and restoration of fish, wildlife, and plant resources and their habitats. The Refuge system is administered by the U.S. Fish and Wildlife Service, the principal federal agency responsible for conserving, protecting, and enhancing fish, wildlife, and their habitats for the continuing benefit of the American people.

Parker River Refuge protects approximately 4,700 acres of lands and waters in the Plum Island Estuary, which is fed primarily by the Parker and Ipswich Rivers. We are disheartened to learn that EOEEA and MassDEP is proposing Safe Yield limits that are higher than current withdrawals for both these rivers. In the case of Parker River, Safe Yield would be more than six times the current withdrawal usage (from 2.3 MGD to 14.8 MGD). As you are undoubtedly aware, these rivers are already severely degraded (most of the water basins are classified as Category 4 or 5) due to development and current water withdrawals. The Ipswich River was named the 3rd most endangered river in the U.S in 2003. Portions of Parker River dried out in 2010 and 2011 due to water withdrawals.

We have not been involved in the SWMI framework process, but understand that the framework is based on the sound science and used the best available research and analysis by State Agencies and USGS. It is therefore difficult for us to comprehend how this process resulted in Safe Yields that are so much higher than current usage in two watersheds that are already degraded. In calculating Safe Yields, MassDEP averaged 55 percent of Q90 flows. This methodology does not take in account the fact that river flows are highly seasonal, with the lowest flows in the summer months when user demand for water withdrawal is the highest. Based on current river flow data, the new Safe Yield proposals would allow more water to be withdrawn from the Parker River than total river flows in 5 out of 12 months in drought years.

In-stream flow and ground water recharge are the primary drivers of aquatic ecosystem health and function. The Refuge is concerned that the proposed Framework will have these long term and irreversible adverse impacts on Service trust resources and habitats within the Refuge.

- The proposed Safe Yield would allow for significant reduction in flow in the Parker River, resulting in the significant loss of available habitat to diadromous fish, such as American eel, river herring, Atlantic sturgeon, and American shad.

- Groundwater plays a pivotal role in moderating stream temperatures, providing critical thermal habitat for species that require cooler temperatures in summer and ice-free habitats in winter in order to maintain healthy, viable populations.
- Increased water withdrawals and associated impervious surfaces would reduce flow of freshwater to the estuary, reducing the zone of brackish marsh, a highly biological diverse habitat that hosts numerous rare species and habitat protected by Federal and Massachusetts Endangered Species Act. It would also alter the salinity of the estuary and its habitat, further stressing endemic species that have evolved to survive in a physiographic harsh environment.
- Increased water withdrawals and increase water storage will reduce or eliminate seasonal flooding into adjacent wetland habitats. This not only leads to the loss of wetland habitats, but also removes the opportunity for the wetlands to filter nutrients and other contaminants from the river, further degrading fish habitat.
- Groundwater withdrawals near the coast could break the freshwater lens, introducing salt water in the freshwater ground reservoir. Such an intrusion would kill upland trees, producing “ghost forest”, and ramp up decomposition rates in the salt marsh, leading to exceptionally high rates of elevation loss. Such an intrusion would also make the groundwater unsuitable for human use.
- Reduced water flows would also adversely affect the ability of salt marshes and barrier island habitat to keep pace with sea level rise and recover from storm events. Increased water withdrawals and increased water storage will reduce river flow and volume, reducing sediment transport to the estuary. A 2010 USGS study found that the Great Marsh was a system that is sediment poor, and is vulnerable to sea level rise. In a system that is already sediment limited; reducing sediment transport could tip the balance and lead to loss of hundreds, if not thousands of acres of salt marsh. Sediment that remains in streams may contain various contaminants and will degrade fish habitat.

We applaud EOEEA for basing the SWMI Framework on best available science, and recommend EOEEA to make following changes to the SWMI Framework in order to provide reliable water supplies while maintaining healthy river conditions.

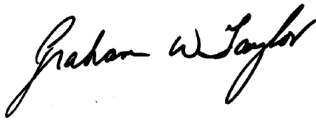
- We applaud EOEEA for using sound science in the SWMI Framework, but believe that the Safe Yield for Parker River is unsustainable. We recommend that Safe Yield withdrawal limits be calculated based on August median flows rather than annual average monthly flows. A minimal flow criteria thresholds should be added to the permitting Framework using August medium flows (based on USGS fluvial study), with a trigger for enacting limits on non-essential uses.
- The proposed Framework uses current withdrawals as the baseline for permitting. This acceptance of current usage as baseline is counter to the anti-degradation policy of the Clean Water Act and SWMI core goals. Under this policy, the most pristine rivers are to be protected from being degraded, and degraded rivers are to be restored to healthy conditions. The proposed Framework also allows degradation of Category 4 to Category 5 in cases where the user cannot find a feasible alternative, defined by cost, purview, level of improvement and adaptive management.
- Massachusetts communities are leaders in using innovative strategies to conserve water. For example, the town of Reading discontinued well pumping near the river and the town of Danvers used structured development fees to reduce water usage. These combined efforts reduce water use in the Ipswich watershed and restored water flow in the Ipswich River since 2006 after decades of no flow. These examples demonstrate that restoration of degraded rivers is feasible even as populations grow, and all options should be explored to restore Ipswich and Parker River to Category 3.
- The proposed Framework also allows a 5-8% increase in withdrawal without permitting requirements. This potentially rewards communities that are the heaviest water use. Our communities have demonstrated that they are capable of further reducing per capita water usage,

and we should encourage such actions. Examples of incentives include permitting small increases above baseline only for communities that have lower than average per capita water usage, lower than average per capita impervious surface, and increased groundwater returns.

- Climate change has already altered precipitation, evapo-transpiration, hydroperiod and storm frequency, and will continue to do so in the 20-year time frame of the proposed Framework. Massachusetts has been the leader in climate science in the Northeast, and has extensive data and predictive models available for climate planning. EOEEA should incorporate climate-related stressors in the Framework to ensure healthy rivers and adequate water supply in a climate change environment.

Thanks you for your consideration of these comments. Parker River NWR looks forward to working with the Commonwealth in protecting our water and biological resources. If you have any questions, please contact me at graham_taylor@fws.gov or at 978-465-5753.

Sincerely,

A handwritten signature in black ink that reads "Graham W. Taylor". The signature is written in a cursive, flowing style.

Graham Taylor
Refuge Manager